

REMARKS

In the application, Claims 1-42 are pending, all claims have been rejected. In response independent Claims 1 and 18 have been amended and new Claims 43-48 have been added. Applicants appreciatively acknowledge withdrawal of the restriction requirement.

Rejection under 35 USC §112, 1st paragraph

The Examiner rejected Claims 1-42 under 35 USC §112, 1st paragraph as allegedly not enabling the steps performed by the processing and analyzing modules.

Various steps and techniques described in publicly available references were relied upon but not typed into the specification. These references are listed throughout the inventive specification, for example, page 21 lines 22-25:

"Labeled neurons were identified and imaged using a custom-made 2PLSM laser scanning microscope (as described in Mainen, Z. F., Maletic-Savatic, M., Shi, S. H., Hayashi, Y., Malinow, R., and Svoboda, K. (1999), Two-photon imaging in living brain slices, *Methods* 18, 231-239, the contents of which are hereby incorporated by reference)."

References may be found on page 3, lines 21-29; page 10, lines 18-19; page 12, lines 30-31; page 13, lines 4-5 and 23-24; page 13, line 30 to page 14, line 1; page 19, lines 16-18; page 21, lines 23-25; page 25, lines 4-7; and page 28, lines 5-10.

Moreover, it should be understood that the inventive application describes a computer algorithm that processes and analyses an image. Numerous techniques for processing and analyzing images are well known to those skilled in the art.

Furthermore Claim 18 is a method, whose steps are enabled by the specification, which includes references listed above and Claim 1 has been amended to claim the steps of the inventive algorithm, which now would provide enablement. Similarly, new Claims 43-48 are enabled by the specification in light of the references and common knowledge.

It is therefore submitted that Claims 1-42 and new Claims 43-48 are enabled by the specification when referenced publicly available publications and known computer algorithms that process and analyze images are taken into consideration. For that reason it is respectfully requested that rejection under 35 USC §112, 1st paragraph be withdrawn.

Rejection under 35 USC §112, 2nd paragraph

The Examiner rejected Claims 18-42 under 35 USC §112, 2nd paragraph as being indefinite. Claim 18 has been amended to have the final process step agree back with the preamble, as requested. It is therefore submitted that Claims 18-42 are definite. For that reason it is respectfully requested that rejection under 35 USC §112, 2nd paragraph be withdrawn.

Rejection under 35 USC §102

The Examiner rejected Claims 1-9 and 14-17 under 35 USC §102 (b) as being anticipated by an article authored by Spacek et al. Spacek et al. describes a three-dimensional organization of smooth endoplasmic reticulum in hippocampal CA1 dendrites and dendritic spines of the immature and mature rat. The sentence starting on page 191 and ending on page 192 points out a significant difference between Spacek et al. and the invention. It states:

“Spines were considered thin if their length was greater than the neck diameter, and the diameters of the head and neck adjacent sections, and then outlines of the plasma membrane, postsynaptic densities, mitochondria and SER were traced and morphometric data, were determined using PC-based software”

The present invention is an algorithm performed by a computing device, and as recited in Claim 1 as amended, the inventive tracing is therefore performed automatically in the processing module of Claim 1 by “processing the image, extracting neuronal structures therefrom”. This automatic processing of images, which includes automatic recognition “based on geometrical features of the neuronal structures” claimed in Claim 1 is not taught or suggested by Spacek.

For at least that reason it is respectfully submitted that the rejection under 35 USC §102(b) be withdrawn and Claim 1 as amended be allowed. Without conceding the patentability per se of dependent Claims 2-9 and 14-17 it is respectfully submitted that they are allowable by virtue of their dependences on independent Claim 1.

It is noted that Claims 10-13 and 18-42 have not been rejected in view of the prior art of record. In addition Claims 43-48 have been added and are believed to be patentably distinct over the art of record.

Applicants respectfully submit that all of the claims of the application as presented herein, including the newly added claims, are in condition for allowance. Early favorable action is earnestly solicited.

Respectfully submitted,



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